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10/517,445

12/09/2004

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EXAMINER

NGUYEN, DONGHAI D

ART UNIT

PAPER NUMBER

3729

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/517,445 | <b>Applicant(s)</b><br>NISHII ET AL. |  |
|                              | <b>Examiner</b><br>DONGHAI D. NGUYEN | <b>Art Unit</b><br>3729              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 10-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on December 10, 2007 has been considered and made of record.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of US Patent 7,063,768 to Tsujimoto et al.

Regarding claim 1, AAPA discloses a method of manufacturing a circuit board, comprising: transferring a first sheet (13), which extends in a first direction (202), in a second direction (201), so that the first direction of the first sheet is parallel to the second direction (see Fig. 6); and sticking films (14) onto both surfaces of the first sheet (see Fig. 7), the films (14) being arranged to be entirely peeled off from both surfaces of the first sheet (13, see Fig. 9A-9D). However, AAPA does not teach transferring the first sheet in a third direction orthogonal to the first direction of the first direction of the first sheet. Tsujimoto et al teach the step of transferring the first sheet (L1) in a third direction orthogonal to the first direction of the first sheet (L1, see Fig. 22) while attaching the first sheet (L1) to another sheet (S2) in transverse direction for forming a laminate structure (L2) having good thickness precision (See Col. 19, lines 22-23 or Col. 37, line 34). Therefore, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to modify the AAPA by utilized the transferring first sheet in the third direction orthogonal to the first direction of the first sheet as taught by Tsujimoto et al to obtain a circuit board having good thickness precision.

Regarding claim 2, AAPA discloses sticking the films (14) comprises pressing the films on the first sheet with a heated roller (15) while transferring the first sheet in the third direction.

Regarding claims 3 and 4, AAPA discloses impregnating a reinforcing member of woven fabric (fiber sheet or glass cloth 11) with impregnation material (12) while transferring the reinforcing member in the second direction (201) so as to provide the first sheet (13), the reinforcing member having a direction corresponding to the first direction (202) of the first sheet, the direction of the reinforcing member being parallel to the second direction.

Regarding claim 5, AAPA discloses forming a via-hole (17) in the first sheet having the films stacked thereon; filling the via-hole with conductive paste (18); peeling off the films from the first sheet (See Fig. 9D); and heating and pressing metallic foils (19) onto both surfaces of the first sheet after said peeling off the films (See Fig. 9F).

Regarding claim 10, AAPA discloses the first sheet (13) has a side, which extends in the first direction (see Fig. 6).

Regarding claim 11, AAPA discloses the transferring a plurality of separate first sheets (13), each of which extends in the first direction, and wherein said sticking of the films (14) onto both surfaces of each of the separate first sheets.

Regarding claim 12, AAPA discloses continuous films (14) onto both surfaces of each of the separate first sheets (13) while transferring each of the separate first sheets (see Fig. 7).

Regarding claim 13, AAPA discloses the first sheet (13) is a prepreg sheet (see Page 1, line 16).

Regarding claim 14, AAPA discloses impregnating a resin (12) in a fiber sheet (11, see Fig. 6); and squeezing a part of the impregnated resin while transferring the fiber sheet having the resin impregnated therein, wherein the impregnated resin is in a semi-cured state after said squeezing of the part of the impregnated resin, and wherein after the impregnated resin is in the semi-cured state, the fiber sheet having the impregnated resin therein comprises the first sheet (13, see page 1, lines 20-22).

Regarding claims 15 and 16, AAPA discloses impregnating a resin (12) in a fiber sheet (12); squeezing a part of the impregnated resin while transferring the fiber sheet having the resin impregnated therein, wherein the impregnated resin is in a semi-cured state after said squeezing of the part of the impregnated resin (13, see page 1, lines 20-22); and cutting the fiber sheet into a plurality of separate first sheets after the impregnated resin is in the semi-cured state (see Fig. 3 and page 1, lines 22-24).

Regarding claim 6, AAPA/Tsujimoto et al do not discloses the first sheet has the long-side direction is orthogonal to the first direction of the first sheet. It would have been an obvious matter of design choice to one having ordinary skill in the art the time the invention was made to choose the long side or short side of the first sheet is orthogonal to the first direction, since Applicants have not disclose the specific side of the first sheet is orthogonal to the first direction, solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the first direction as disclosed by AAPA/Tsujimoto et al.

***Response to Arguments***

4. Applicant's arguments filed December 10, 2008 have been fully considered but they are not persuasive. Applicants argue that there is no suggestion to combine the references since "Tsujimoto does not disclose that the rotating of the pieces L1 produces a good thickness precision" (see "Remarks" page 7, 2<sup>nd</sup> paragraph), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tsujimoto et al disclose the invention of producing a resin sheet with high thickness precision (see Col. 3, lines 3-7) by compressed/laminated the resin sheet (core material) in both directions (i.e., longitudinal and lateral directions, see Figs. 21 and 22) without controlling the laminated pressure and/or temperature (see Col. 19, lines 17-24). In the same paragraph, Applicants also argue that "the thickness precision of the laminated structure is obtained by controlling the compressive strain quantity". The Examiner disagrees because Tsujimoto et al disclose that the thickness precision of the laminated structure is not obtained by changed/controlled of pressure and/or temperatures but by controlled/changed the displacement (i.e., rotating the core material, "the resin sheet") in the range of the compressive elasticity area".

In response to applicant's argument that Tsujimoto et al is nonanalogous art (see "Remarks" paragraph between pages 7-8), it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular

problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Tsujimoto et al disclose the method for producing a laminated structure having a thickness precision which pertinent to the problem with which the applicants were concerned.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONGHAI D. NGUYEN whose telephone number is (571)272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN  
March 2, 2008

/Donghai D. Nguyen/  
Primary Examiner, Art Unit 3729



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|--|-------------------------|---|--|
| <div>Application Number</div> <div></div> | Application/Control No. | Applicant(s)/Patent under Reexamination |  |
|  | 10/517,445              | NISHII ET AL.                           |  |
|  | Examiner                | Art Unit                                |  |
|  | DONGHAI D. NGUYEN       | 3729                                    |  |